

CLAIMS

We claim:

Sub B1/ 1. An isolated polynucleotide encoding a ligand-binding receptor polypeptide, said polypeptide comprising a sequence of amino acids selected from the group consisting of:

- (a) residues 141 to 337 of SEQ ID NO:2;
- (b) allelic variants of (a); and
- (c) sequences that are at least 80% identical to (a) or (b).

2. An isolated polypeptide according to claim 1 comprising residues 141 to 337 of SEQ ID NO:2 or SEQ ID NO:4.

3. An isolated polynucleotide according to claim 1 wherein said polypeptide further comprises a transmembrane domain.

Sub C2 4. An isolated polynucleotide according to claim 3 wherein said transmembrane domain comprises residues 340 to 363 of SEQ ID NO:2, or an allelic variant thereof.

5. An isolated polynucleotide according to claim 3 wherein said polypeptide further comprises an intracellular domain.

Sub C2 6. An isolated polynucleotide according to claim 5 wherein said intracellular domain comprises residues 365 to 380 of SEQ ID NO:2, or an allelic variant thereof.

7. An isolated polynucleotide according to claim 1 wherein said polypeptide comprises residues 25 to 337 of SEQ ID NO:2 or SEQ ID NO:4.

~~9. An isolated polynucleotide according to claim 1 which is a DNA as shown in SEQ ID NO:1 from nucleotide 49 to nucleotide 1188, or SEQ ID NO:3 from nucleotide 10 to nucleotide 1149.~~

11. An isolated polynucleotide according to claim 10 wherein said affinity tag is polyhistidine, protein A, glutathione S transferase, substance P, or an immunoglobulin heavy chain constant region.

13. An expression vector comprising the following operably linked elements:

a transcription promoter;

a DNA segment encoding a secretory peptide and a ligand-binding receptor polypeptide, said polypeptide comprising a sequence of amino acids selected from the group consisting of:

- (a) residues 141 to 337 of SEQ ID NO:2;
(b) allelic variants of (a); and
(c) sequences that are at least 80% identical to (a) or (b); and
a transcription terminator.

14. An expression vector according to claim 13 wherein said polypeptide comprises residues 141 to 337 of SEQ ID NO:2 or SEQ ID NO:4.

15. An expression vector according to claim 13 wherein said polypeptide further comprises a transmembrane domain.

Sub C5 ~~16. An expression vector according to claim 15 wherein said transmembrane domain comprises residues 340 to 363 of SEQ ID NO:2, or an allelic variant thereof.~~

17. An expression vector according to claim 15 wherein said polypeptide further comprises an intracellular domain.

Sub C6 ~~18. An expression vector according to claim 17 wherein said intracellular domain comprises residues 364 to 380 of SEQ ID NO:2, or an allelic variant thereof.~~

~~19. An expression vector according to claim 13 wherein said polypeptide comprises residues 25 to 337 of SEQ ID NO:2 or SEQ ID NO:4.~~

~~20. An expression vector according to claim 13 wherein said polypeptide comprises residues 1 to 380 of SEQ ID NO:2 or SEQ ID NO:4.~~

Sub B3 21. An expression vector comprising the following operably linked elements:

(a) a transcription promoter;
(b) a DNA segment encoding a secretory peptide and a chimeric polypeptide, wherein said chimeric polypeptide consists essentially of a first portion and a second portion joined by a peptide bond, said first portion consisting essentially of a ligand binding domain of a receptor polypeptide selected from the group consisting of:

- (i) a receptor polypeptide as shown in SEQ ID NO:2;
- (ii) allelic variants of SEQ ID NO:2; and

(c) a transcription terminator.

28. A polypeptide according to claim 26 further comprising an affinity tag.

29. A polypeptide according to claim 28 wherein said affinity tag is polyhistidine, protein A, glutathione S transferase, substance P, or an immunoglobulin heavy chain constant region.

30. A polypeptide according to claim 26 that is immobilized on a solid support.

31. A chimeric polypeptide consisting essentially of a first portion and a second portion joined by a peptide bond, said first portion consisting essentially of a ligand binding domain of a receptor polypeptide selected from the group consisting of:

- (a) a receptor polypeptide as shown in SEQ ID NO:2;
 - (b) allelic variants of SEQ ID NO:2; and
 - (c) receptor polypeptides that are at least 80% identical to (a) or (b),
- and said second portion consisting essentially of an affinity tag.

32. A polypeptide according to claim 31 wherein said affinity tag is an immunoglobulin F_C polypeptide.

33. A method for detecting a ligand within a test sample, comprising contacting a test sample with a polypeptide comprising a segment selected from the group consisting of:

- (a) residues 141 to 337 of SEQ ID NO:2;
 - (b) allelic variants of (a); and
 - (c) sequences that are at least 80% identical to (a) or (b),
- and detecting binding of said polypeptide to ligand in the sample.

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